RETURN

To an Address from the Legislative Assembly, to His Excellency the Governor General, dated the 5th May, 1856, praying His Excellency to cause to be laid before the House, "A Return of all Reports of Explorations and Surveys, if any "made by Engineers or others, since the year 1835, employed "to examine the Valley of the Trent, and the country westward, to Lakes Simcoe and Huron, with the view of constructing a Canal from the Bay of Quinté to Lake Huron."

By Command,

T. LEE TERRILL,
Secretary.

Secretary's Office,
Toronto, 3rd March, 1857.

Crown Lands Department,
Toronto, 23rd May, 1856.

Sir,—I have to acknowledge the receipt of your letter of the 8th instant, requesting me to furnish you, for the information of the Legislative Assembly, with a Return of all Reports of Explorations and Surveys, if any, made by Engineers and others, since the year 1835, employed to examine the Valley of the Trent, and the country westward, to Lakes Simcoe and Huron, with the view of constructing a Canal from the Bay of Quinté to Lake Huron, and to inform you, in reply, that the Reports are not of record in this Department, but are contained in the Appendices to the Journals of the Legislative Assembly of Upper Canada, for the Sessions of 1833-34, 1837-38, and 1839-40.

For subsequent operations, reference should be had to the Department of Public Works.

I have the honor to be, Sir,
Your most obedient servant,
JOSEPH CAUCHON,
Commissioner of Crown Lands.

The Hon George E. Cartier,
Provincial Secretary, &c. &c. &c.

PUBLIC WORKS,
TORONTO, 21st February, 1857.

SIR,—As requested by your letter of the 27th of last May, I am directed to inclose to you herewith copies of Reports of Mr. Samuel Keefer and Mr. James Lyons, upon the Survey for a proposed "Trent Canal," and to state that they are the only Documents in this office connected with "Trent Surveys."

This Department has been in existence only since 1841.

I have the honor to be, Sir,
Your obedient servant,
THOMAS A. BEGLY,
Secretary.

E. A. Meredith, Esq.,
Assistant Secretary.

BOARD OF WORKS,
MONTREAL, 23rd April, 1846.

SIR,—In reference to Mr. Lyons's Survey for a Canal to connect the reach above Heely's Falls, upon the River Trent, with the Bay of Quinté, I have the honor to report as follows:

The Otonabee, which empties itself into Rice Lake about twelve miles from the lower end, has been made navigable as far up as Peterboro', and the object of the present Survey was to ascertain the practicability and expense of connecting the Rice Lake with Lake Ontario by an inland canal of the same size as the Rideau, corresponding with which the locks upon the Otonabee and Trent have been built.

The difference of level between Rice Lake and Ontario is about three hundred and sixty-five feet, so that the whole fall to be overcome is thirty-five feet more than that of the Welland Canal, which is three hundred and thirty feet.

The lock at Crook's Rapids, situated at the foot of Rice Lake, overcomes a fall of eight feet, and opens a navigation of fifty-three miles in extent, from Peterboro' to Heely's Falls, at which place the present Survey begins.

Between Heely's Falls and the mouth of the Trent, another reach of twenty and a half miles of this river has been made navigable by means of a lock at Chisholm's Rapids, the face of which is eight and three quarters feet.

This navigable portion of the Trent extends from Percy Landing nearly down to the widow Harris; and in order to complete the navigation, it is necessary to construct a Canal from Heely's Falls to Percy Landing, the distance by the river being twelve and a half miles, and the fall two hundred and thirty-two feet; and another from widow Harris' to the mouth of the Trent, the distance by the river being nine miles, and the fall in that distance one hundred and ten and a half feet.

In the first Survey of the Trent made by Mr. Baird in the year 1833, he proposed to make this River navigable by means of a series of locks and dams, and in accordance with his plans the three locks above mentioned, and the dams with which they are connected, were undertaken by the Commissioners, and have since been completed under the direction of the Board of Works, for the purpose of taking advantage of the long reaches of the river, which are made available by their means.

But since the erection of the slides upon the Trent, and the great impetus that has been given to the lumber trade in consequence, it has now become sufficiently apparent that the system of locks and dams is neither a suitable nor a safe one to be adopted for this navigation.

Nor would it be wise (even supposing that the immense quantities of timber

descending the Trent could be conducted down it without injury to the works) to expend so large a sum as would be necessary to make this navigation, when the essential structures upon which its very existence depends, viz., the dams, are subject to annual and sudden floods, and the failure of only one of which might possibly cause the destruction of the whole.

In making the present Survey, it was therefore laid down as a fixed principle, that the Canal should be made inland, and beyond the influence of the floods; and notwithstanding it was evident from the formation of the country that both shores of the river were composed of stratified limestone, it was considered as the only safe and proper mode of accomplishing the end in view.

From various reports made to me of the existence of ravines, which afforded facilities for making the Canal around Heely's Falls, I hoped to be able to find an inland route from thence to Percy Landing, but after much time and pains spent by Mr. Lyons in the search, no such favorable line could be found. He was therefore under the necessity of resorting to the bed of the river itself as the only practicable means of surmounting the obstacles to the navigation presented between Heely's Falls and Crow Bay.

This portion of the river comprehends his first section, which is one mile and thirty-five chains long, and the fall, which is seventy-nine and a quarter feet, is proposed to be overcome by eight locks. His estimate for this section is £46,255 10s. 5d.

I am fully persuaded, however, that this part of his plan will not answer, both on account of the interference of the lumber trade with his proposed navigation, as well as the danger to which his works must be subject in consequence of floods and descending timber and masts.

In the first place, his navigation would be stopped or suspended during the running season for timber; and in the second place, it is in danger of being totally destroyed. If no better route than this can be found, this section must be reported as impracticable; but I am not prepared to pronounce it so, because I conceive that, at an additional expense, it is possible to carry the Canal along the brow o the hill until the level of the table land on the west side is attained, and then to descend from it into Crow Bay. The Survey made by Mr. Lyons was completed too late in the season to admit of further examination upon this point.

The second section of Mr. Lyons' Survey is as favorable as could be expected, when it is taken into consideration that the line for the Canal must necessarily pass through rock cutting, and he has been enabled to select a very good line upon the west side of the river, out of reach of the floods, and away from the banks of the river.

The fall in this distance is one hundred and fifty-three feet, and can be overcome by twelve Locks. His estimate for it is £112,738 12s. 11d.

The third section, from the widow Harris' to the Bay of Quinté, is also as favorable as can be expected, from the rocky nature of the country through which it must pass. The route selected is upon the west side of the river, and the selection appears to have been judiciously made. The length of this section is very nearly nine miles. The fall is one hundred and ten and a half feet, and is surmounted by nine locks. His estimate for it is £96,309 19s. 8d.

The entire length of Canal comprehended in these three sections is eighteen and a quarter miles. The total fall to be overcome is three hundred and forty-two and three-fourths feet; the number of locks required is twenty-nine; and the total cost is estimated by Mr. Lyons at £255,304 3s.

Upon the careful review of the estimates, I am convinced that Mr. Lyons has not made sufficient allowance for the difficulties to be encountered in carrying the proposed works into execution.

I have taken the sections furnished by him, calculated the quantitiess and

affixed prices such as works of the same class now under contract with the Board have been taken at, and in this manner my estimate for the

First section is	£ 65,455
Second section	189,383
Third section	144,465
Total	£399,303

This amount is exclusive of land damages, which it is impossible to estimate with any degree of certainty.

It is unnecessary to take up your attention with the details of this estimate, or to point out all the differences between this and the one furnished by Mr. Lyons; but I will merely observe that a lock of twelve feet lift, one hundred and thirty-five long in the chamber, thirty-three feet wide, and with four and a half feet of water on the sills, including gates and working gear complete, is estimated by Mr. Lyons at £3,547, and by me at £4,700.

After the experience of the last six years, as to the cost of stone locks in various parts of the Province, I am quite safe in saying that locks of the size and description intended for this navigation cannot be built for the sum stated by Mr. Lyons. Those of the Welland Canal have cost upwards of £6,000 each.

I have therefore to observe, in conclusion, that, according to the best judgment I can form of the projected improvement of the Trent, my opinion is, that it would require an appropriation of £400,000 to cover the cost of it, independently of the expense of land damages; but that as regards the first section, from Heely's Falls to Crow Bay, a different line from that surveyed by Mr. Lyons must be selected; and as regards the other two sections, it may be found, upon further examination, that trifling deviations may be made in the line by which the Canal may be improved without additional expense.

I have the honor to be, Sir,
Your obedient servant,
(Signed,) SAMUEL KEEFER,
Engineer Board of Works.

The Hon. Hamilton H. Killaly.

Cobourg, 24th March, 1846.

Sir,—I have the honor of herewith submitting to you the issue of the Surveys intrusted to me by orders of the Board, of two lines of Canals, the one being to connect Rice Lake with the Bay of Quinté, and the other, uniting the waters of Lake Ontario with the said Bay by a canal.

In reporting on those contemplated improvements, many considerations present themselves, and I availed myself of every means within my power of arriving at a just conclusion.

With regard to the first named work, it certainly appears most desirable that the waters of the Trent should be made available: they pass through a fine country rapidly filling up with settlements, and every day being cleared from the forest, which is giving place to cultivated farms.

In the neighbourhood of Crow River there are extensive ore beds, the working of which is prevented soleby by the want of some means of transport; and the people in that section have always been led to believe that it was the intention of the Government to open up the navigation.

The long stretch of water communication runs in a diagonal line across the two districts of Colborne and Newcastle, presents great facilities for trade and commerce, and as it was my duty last year to enter fully into the advantages likely to be derived from the improvements made under the direction of the Board, it is therefore not necessary for me on the present occasion to recapitulate those argu-

ments, but merely to refer to the map of the two districts which at one view will present the great extent of country that would be benefited by those improvements.

The Report on the Peterboro' and Asphodel road, and the other information required from me by the Board, will be prepared and forwarded as soon as possible.

I have the honor to be,

Sir,

Your most obedient servant.

(Signed,) JAMES LYONS.

Thomas A. Begly, Esq.
Secretary, Board of Works,
&c. &c. &c.

IMPROVEMENT OF RIVER TRENT.

Report on the practicability of connecting the Reach above Heely's Falls and the Bay of Quinté by a Canal inland and using those sections of the river which are at present navigable.

The strong objections against damming the bed of a river in any instance, particularly where there is a strong current, rendered it necessary to make a most careful examination of the country between Heely's Falls and Crow Bay; a ravine was pointed out by the inhabitants, which has always been considered practicable and which is shewn on the plan of this section.

In the hope of finding it so regardless of its distance, I commenced a line of levels, and at a distance of 33 chains, 85 links, from the river, arrived at a level 11.76 feet above the top of the dam, and at a distance of 1 mile, 42 chains, 59 links, obtained a level 51 feet above the same point.

I then had to return to the bed of the river.

The plan and section will shew the plan proposed for its improvement: its cost per estimate will amount to £46,255 10s. 5s., which will carry the navigation to Crow Bay, a very fine sheet of navigable water not less than 10 feet deep at its lowest level: the distance from Heeley's to Crow Bay by the bed of the river is 1 mile, 35 chains, 40 links, and the difference of level lowest water 79.246 feet.

The next section inland is from Crow Bay to Percy Landing, a distance of 8 miles, 69 chains, 29 links, with a difference of level 153,102 feet; the shape of the ground selected is admirably adapted, which will appear by an examination of the section: the cuttings and embankments are not great, but entirely through solid rock—the cost as per estimate amounts to £112,738 12s. 11d.

From Percy Landing the river is made navigable by the lock of Chisholm's Rapids for a distance of about 14 miles: from thence to widow Harris' it is not navigable, there being two bars with only 3½ feet of water covering them, but by the improvement embraced in the estimate of the 3rd and following section, its navigation will be made complete: the probable distance is 6 miles, 42 chains, 70 links.

From widow Harris' to the point near the mouth of the river where the first lock was originally proposed (and which is in part excavated from thence towards the river) a distance of 7 miles, 77 chains, 30 links inland, and the difference of level 110,472 feet will cost as per estimate £96,309 19s. 8½d., making the cost of the improvement from Heeley's Falls to the Bay of Quinté, amount to £255,304 3s. 0½d., and making the navigation from Peterboro to the mouth of the Trent complete and to correspond with the vessels adapted for the Rideau Canal.

As before observed the section throughout the whole of the inland route could not be much more favorable so far as regards the *shape* of the land and its course—it crosses very few streams, and it happens that the surface of the largest of these comes on a level with the surface level of the Canal, and can be discharged in their former bed without any extra expense.

In the final location of the inland route, trifling savings may be effected by slight deviations from the line presented.

(Signed,) JAMES LYONS.

ESTIMATE of the probable cost of constructing a Canal inland, to connect Heeley's Falls and the mouth of the River Trent—40 feet wide at bottom in rock, perpendicular side slopes on embankment, 2 to 1 Locks, 135 × 33 × 9

FIRST SECTION—FROM HEELEY'S FALLS TO CROW BAY, ALONG THE BED OF THE RIVER.

Description of Work.	Quantity.	Rate.	Amount.	Totals.
	C. Yds.		£ s. d.	£ s. d.
Entrance pier	.....	.....	130 1 0	
1 coffer dam at Heeley's, no pumping required	.....	.....	44 0 0	
Rock excavation in lock pits, &c.	30907	3s. 9d.	5795 1 3	
3 dams. 8. 8 and 7, 25 feet high, with slides—£1509 5s. ea.	.....	.....	4527 17 0	
1 stone dam in ravine	380	5s.	95 0 0	
Stone walls at lock	4622	15s.	3466 10 0	
1 copper dam at entrance from Crow Bay, its removal and pumping	.....	.....	340 0 0	
2 locks combined, 10 feet lift, including gates, &c.	.....	.....	7027 0 0	
1 lock single, 14 feet lift, including gates, &c.	.....	.....	4174 0 0	
1 do 9 do do	.....	.....	3242 10 0	
1 do 14 do do	.....	.....	4174 0 0	
1 do 7.25 do do	.....	.....	3335 10 0	
1 do 8 do do	.....	.....	3431 10 0	
1 do 8 do do	.....	.....	3431 10 0	
Pumping water to hang lock, gates, &c.	.....	.....	15 0 0	
			£ 43229 9 3	
Add 7 per cent. for contingencies and unforeseen expenses	.....	.....	3026 1 2	
Length of this Section, 1 mile, 35 chains, 40 links.				
Difference of level, lowest water 79,246 feet.				£ 46255 10 5

SECOND SECTION—FROM CROW BAY TO PERCY LANDING.

1 coffer dam at Crow Bay and removal, no pumping	.....	.....	134 0 0	
1ST MILE.				
Clearing 18 acres	.....	£2	36 0 0	
Grubbing 6 acres	.....	£10	60 0 0	
Top excavation, loose rock and earth	16800	1s. 3d.	1050 0 0	
Do solid rock, including passing places	41359	3s.	6203 17 0	
Do do lock pits	7757	3s. 9d	1454 8 9	
Do loose rock and earth	1727	1s. 3d.	107 18 9	
Embankments	7223	10d.	300 19 2	
Crow Bay under water	444	5s.	111 0 0	9458 3 8
2ND MILE.				
Clearing 24 acres	.....	£2	48 0 0	
Grubbing 8 acres	.....	£10	80 0 0	
Top excavation, loose rock and earth	16829	1s. 3d.	1051 16 3	
Do solid rock, including passing places	41184	3s.	6177 12 0	
Embankments	14243	10d.	593 9 2	7950 17 5
3RD MILE.				
Clearing 4½ acres	.....	£2	9 0 0	
Grubbing 1½ acres	.....	£10	15 0 0	
Top excavation, loose rock and earth	13422	1s. 3d.	838 17 6	
Do solid rock, including passing places	6632	3s.	994 16 0	
Do lock pits, solid rock	2580	3s. 9d.	483 15 0	
Do lock, loose rock and earth	865	1s. 3d.	54 1 3	
Embankments	36462	10d.	1519 5 0	3914 14 9

ESTIMATE—2ND SECTION—(*Continued.*)

Description of Work.	Quantity.	Rate.	Amount.	Totals.
	C. Yds.		£ s. d.	£ s. d.
4TH MILE.				
Clearing 3 acres	.....	£2	6 0 0	
Grubbing 1 acre	.....	£10	10 0 0	
Top excavation, loose rock and earth	15197	1s. 3d.	949 16 3	
Do solid rock, including passing places	30803	3s.	4620 9 0	
Do lock pits, solid rock	4678	3s. 9d.	877 2 6	
Do lock, loose rock and earth	865	1s. 3d.	54 1 3	
Embankments	30787	10d.	1282 15 10	
				7800 4 10
5TH MILE.				
Clearing 24 acres	.....	£2	48 0 0	
Grubbing 8 acres	.....	£10	80 0 0	
Top excavation, loose rock and earth	15721	1s. 3d.	982 11 3	
Do solid rock, including passing places	33047	3s.	4957 1 0	
Do lock pits, solid rock	6401	3s. 9d.	1200 3 9	
Do lock, loose rock and earth	2444	1s. 3d.	152 15 0	
Embankments	9415	18s.	392 5 10	
				7812 16 10
6TH MILE.				
Clearing 24 acres	.....	£2	48 0 0	
Grubbing 8 acres	.....	£10	80 0 0	
Top excavation, loose rock and earth	16800	1s. 3d.	1050 0 0	
Do solid rock, including passing places	15107	3s.	2266 1 0	
Do lock pits, solid rock	6668	3s. 9d.	1250 5 0	
Do lock, loose rock and earth	1727	1s. 3d.	107 18 9	
Embankments	36318	10d.	1513 5 0	
				6315 9 9
7TH MILE.				
Clearing 15½ acres	.....	£2	31 0 0	
Grubbing 5½ acres	.....	£10	51 13 4	
Top excavation, loose rock and earth	13914	1s. 3d.	869 12 6	
Do solid rock, including passing places	14242	3s.	2136 6 0	
Do lock pits, solid rock	6226	3s. 9d.	1167 7 6	
Do lock, loose rock and earth	1604	1s. 3d.	100 5 0	
Embankments	19063	10d.	794 5 10	
				5150 10 2
8TH MILE.				
Clearing 6 acres	.....	£2	12 0 0	
Grubbing 2 acres	.....	£10	20 0 0	
Top excavation, loose rock and earth	11060	1s. 3d.	691 5 0	
Do rock, including passing places	24920	3s.	3738 0 0	
Embankments	14666	10d.	611 1 8	
				5072 6 8
69.29 CHAINS.				
Clearing 9 acres	.....	£2	18 0 0	
Grubbing 3 acres	.....	£10	30 0 0	
Top excavation, loose rock and earth	13064	1s. 3d.	816 10 0	
Do solid rock, including passing places	21988	3s.	3298 4 0	
Do lock pits, solid rock	4310	3s. 9d.	808 2 6	
Do lock, loose rock and earth	1514	1s. 3d.	94 12 6	
Embankments	20146	10d.	839 8 4	
Coffer Dam at Percy, its removal and pumping	.....	.....	121 0 0	
				6025 17 4

ESTIMATE—2ND SECTION—(*Continued.*)

Description of Work.	Amount.	Totals.
Locks, &c.	£ s. d.	£ s. d.
Piers for stop logs	156 13 0	
1 lock 12 feet lift including gates, &c.	3547 0 0	
1 do 12 do do	3547 0 0	
1 do 12 do do	3547 0 0	
3 do combined 36 feet lift do	9107 10 0	
1 do single 14 do do	3823 0 0	
1 do do 14 do do	3823 0 0	
1 do do 9 do do	2926 0 0	
1 do do 10.75 do do	3374 10 0	
1 do do 12 do do	3730 0 0	
1 do do 9.21 do do	2951 10 0	
		40533 3 0
Culverts, Bridges, &c.		
2 small culverts @ £57 each	114 0 0	
6 swing bridges @ £600 each....	3600 0 0	
Pumping water to hang lock gates at Percy	15 0 0	
10 lock keepers' houses @ £160 each	1600 0 0	
		5329 0 0
Length of this section, 8 miles, 69 chains, and 29 links. Difference of level 153,102 feet.		

RECAPITULATION.

	Amount.	Totals.
	£ s. d.	£ s. d.
1st mile	9458 3 8	
2nd do	7950 17 5	
3rd do	3914 14 9	
4th do	7800 4 10	
5th do	7812 16 10	
6th do	6315 9 9	
7th do	5150 10 2	
8th do	5072 6 8	
69.29 chains	6025 17 4	
		59501 1 5
Lockage, &c.		40533 3 0
Culverts, Bridges, &c. &c.		5329 0 0
	£	105363 4 5
Add 7 per cent. for contingencies and unforeseen expenses....		7375 8 6
	£	112738 12 11

ESTIMATE—3RD SECTION.

FROM WIDOW HARRIS' TO THE MOUTH OF THE TRENT.

Description of Work.	Quantity.	Rate.	Amount.	Totals.
	C. Yds.		£ s. d.	£ s. d.
1ST MILE.				
Clearing and grubbing	None.	.....	.....	
Top excavation, loose rock....	11808	2s. 6d.	1476 0 0	
Do solid rock including passing places	1848	3s.	277 4 0	
Embankment	8744	10d.	364 6 8	
				2117 10 8
2ND MILE.				
Clearing 4½ acres....	.....	£2	9 0 0	
Grubbing 1½ acres	.....	£10	15 0 0	
Top excavation, loose rock and earth	2397	1s. 3d.	149 16 3	
Do solid rock including passing places	629	3s.	94 7 0	
Do earth	15681	6d.	392 0 6	
Embankments	96643	10d.	4026 15 10	
				4686 19 7
3RD MILE.				
Clearing 18 acres	.....	£2	36 0 0	
Grubbing 6 acres	.....	£10	60 0 0	
Top excavation, loose rock and earth	17185	1s. 3d.	1074 1 3	
Do solid rock, including passing places	27353	3s.	4102 19 0	
Do lock pits, solid rock....	3232	3s. 9d.	606 0 0	
Do loose rock and earth	861	1s. 3d.	53 16 3	
Embankments	37038	10d.	1543 5 0	
				7476 1 6
4TH MILE.				
Clearing 18 acres...	.....	£2	36 0 0	
Grubbing 6 acres	.....	£10	60 0 0	
Top excavation, loose rock and earth	17407	1s. 3d.	1087 18 9	
Do solid rock, including passing places	26392	3s.	3958 16 0	
Do lock pit, solid rock	3875	3s. 9d.	726 11 3	
Do loose rock and earth	861	1s. 3d.	53 16 3	
Embankments	25469	10d.	1061 4 2	
				6984 6 5
5TH MILE.				
Clearing 18 acres	.....	£2	36 0 0	
Grubbing 6 acres	.....	£10	60 0 0	
Top excavation, loose rock and earth	16693	1s. 3d.	1043 6 3	
Rock do including passing places	32085	3s.	4812 15 0	
do lock pits, solid rock	5324	3s. 9d.	998 5 0	
do do loose rock and earth	1605	1s. 3d.	100 6 3	
Embankment	14398	10d.	599 18 4	
				7650 10 10
6TH MILE.				
Clearing 18 acres	.....	£2	36 0 0	
Grubbing 6 acres	.....	£10	60 0 0	
Top excavation, loose rock and earth	16115	1s. 3d.	1007 3 9	
Rock do including passing places	21058	3s.	3158 14 0	
do lock pit, solid rock	2525	3s. 9d.	473 8 9	
do do loose rock and earth	861	1s. 3d.	53 16 3	
Embankment, ...	30541	10d.	1272 10 10	
				6061 13 7

ESTIMATE—3rd SECTION—(*Continued.*)

Description of Work.	Quantity.	Rate.	Amount.	Totals.
	C. Yds.		£ s. d.	
7th Mile.				
Clearing 18 acres	.....	£2	36 0 0	
Grubbing 6 acres	.....	£10	60 0 0	
Top excavation, loose rock and earth	18015	1s. 3d.	1125 18 9	
Solid rock do, including passing places	30959	3s.	4643 17 0	
Embankments	22054	10d.	960 11 8	
				6826 7 5
77.30 Chains.				
Clearing 7¼ acres	.....	£2	15 0 0	
Grubbing 2¼ acres	.....	£10	25 0 0	
Top excavation, loose rock and earth	13611	1s. 3d.	850 13 9	
Solid rock do, including passing places	25964	3s.	3894 12 0	
Lock pits do, solid rock	15345	3s. 9d.	2877 3 9	
Do do, loose rock and earth	3379	1s. 3d.	211 3 9	
Embankment	19384	10d.	807 13 4	
Rock excavation under water	763	5s.	190 15 0	
Side drain	717	7½d.	22 8 1½	
Coffer dam, its removal and pumping	.....	.....	177 0 0	
				9071 9 3½
Locks, &c.				
Piers for stop logs, &c.			156 13 0	
1 lock 12 feet lift, with lock gates, &c.			4072 0 0	
1 do 12 do do			3547 0 0	
1 do 10 do do			3271 0 0	
1 do 14 do do			3824 10 0	
1 do 10 do do			3271 0 0	
2 do combined, 14 and 12 feet lift do			6605 10 0	
1 do single 14 do do			3824 10 0	
1 do do 14.27 do do			3889 0 0	
				32461 8 0
Culverts, Bridges, &c.				
4 swing bridges, @ £600 each			2400 0 0	
1 culvert, 40 feet span			1435 0 0	
Wing dam at widow Harris', 792 ⋈ 2 high			270 14 0	
Opening present dam and removing boulders			20 0 0	
Stone wall at island	1610	at 5s.	402 10 0	
1 dam at old saw mill, and removing the old			850 0 0	
Pumping water to hang gates at the mouth of Trent			15 0 0	
8 lock keepers' houses, @ £160 each			1280 0 0	
			£	6673 4 0

Length of this Section, 7 miles, 77 chains, 30 links.
Difference of level, 110.472 feet.

ESTIMATE—3RD SECTION—(*Continued.*)

RECAPITULATION.

	Amount.	Totals.
	£ s. d.	£ s. d.
1st mile	2117 10 8	
2nd do	4686 19 7	
3rd do	7476 1 6	
4th do	6984 6 5	
5th do	7650 10 10	
6th do	6061 13 7	
7th do	6826 7 5	
77.30 chains	9071 9 8½	
		50874 19 8½
Lockage, &c. &c.		32461 3 0
Culverts, Bridges, &c. &c.		6673 4 0
	£	90009 6 8½
Add 7 per cent. for contingencies and unforeseen expenses....		6300 13 0
	£	96309 19 8½

ABSTRACT ESTIMATE of the Canal Inland to connect Heeley's Falls and the mouth of the River Trent.

	£ s. d.	£ s. d.
1st Section, from Heeley's Falls to Crow Bay	46255 10 5	
2nd Section, from Crow Bay to Percy Landing	112738 12 11	
3rd Section, from widow Harris' to mouth of Trent	96309 19 8½	
	£	255304 3 0½

Nothing allowed for engineering, superintending or damages for Land.

(Signed,) JAMES LYONS.

TORONTO:

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